Utah Department of Transportation
Quality Control/Quality Assurance Guidelines

The following guidelines are intended to help Utah Department of Transportation (UDOT) personnel understand and follow the Quality Control/Quality Assurance (QC/QA) Plan for Preconstruction Activities including the QC/QA Audit. Follow these guidelines and each project will have the proper documentation required for a possible QC/QA Audit.

1. Definitions

Quality Control (QC) – The ongoing, comprehensive, independent checking and verification of the activities that lead to a final product that meets or exceeds UDOT requirements.

Quality Assurance (QA) – The actions necessary to create confidence that the UDOT Quality Control process has occurred.

2. Preconstruction Activities That Require QC/QA

The following Preconstruction activities are in the UDOT Design Process Manual and require QC/QA. Some activities listed below may not be applicable to your project. The checklists are available on the UDOT website at http://www.udot.utah.gov/index.php/m=c/tid=650

The UDOT sections or divisions listed in brackets are responsible for the QC/QA documentation for that activity.

Concept

- #54C – Develop Concept Plans
- #62C – Determine Structures Concept [Structures]
- #76C – Develop Pavement Design [Pavement Design]

Design

- Prepare ITS Design [ITS]
- #02D – Develop Mapping and Topography [Right-of-Way, Roadway Design]
- #03D – Conduct NEPA Scoping [Environmental]
- #08D – Value Engineering Analysis [Project Managers]
- #13D – Develop Initial Alignment & Stake Control Line [Roadway Design]
- #19D – Develop Right-of-way Plans [Right-of-Way]
- #22D – Conduct Roadway Geotechnical Invest [Geotechnical]
- #25D – Prepare Draft Environmental Document [Environmental]

- #28D – Develop Pavement Design [Pavement Design]
- #31D – Prepare and Request Design Exceptions [Roadway Design]
- #34D – Develop Initial Roadway Plans [Roadway Design]
- #37D – Develop Initial Hydraulic Plans [Hydraulics, Roadway Design]
- #40D – Develop Initial Landscape Plans [Landscape]
- #43D – Develop Initial Signal and Lighting Plans [Traffic and Safety]
- #46D – Establish Preliminary Utility & Railroad Plans [Roadway Design, Region Utility Coordinator]
- #52D – Develop Utility and Railroad Pans
- #49D – Develop Structures Type, Situation. & Layout [Structures]
- #55D – Review Roadway Plan - Field Review *(QC only)
- #61D – Prep & Submit 404, Discharge & Stream Alteration Permits [Environmental]
- #67D – Prepare Final Environmental Document [Environmental]
- #85D – Conduct Initial Structure Soil Investigation [Geotechnical]
- #86D – Conduct Final Structure Soil Investigation [Geotechnical]
- #91D – Finalize Landscape Mitigation Plan [Landscape]

Preconstruction

- Finalize ITS Plans (ITS)
- #01P – Develop Final Structure Plans (Bridge Rehab) [Structures]
- #05P – Develop Final Structure Plans (Major Str) [Structures]
- #07P – Develop Final Structure Plans (Structural Walls) [Structures]
- #10P – Develop Final Structure Plans (Minor Str) [Structures]
- #15P – Finalize Hydraulic Plans [Hydraulics, Roadway Design]
- #20P – Finalize Roadway Plans [Roadway Design]
- #25P – Finalize Landscape Plans [Landscape]
- #30P – Finalize Signal and Lighting Plans [Traffic and Safety]
- #33P – Review Final Structure Plans *(QA only) [Structures]
- #35P – Prepare Utility, Railroad & ITS Agree [Roadway Design, Region Utility Coordinator]
- #37P – Prepare Lighting-Signal Agreements [Roadway Design, Region Utility Coordinator]
- #40P – Conduct Final Right-of-way Review [Right-of-Way]
- #55P – Make Right-of-way Appraisals [Right-of-Way]
- #67P – Condemn Right-of-way [Right-of-Way]
- #70P – Assemble PS&E Package [Roadway Design]
- #80P – Make PS&E Revisions-Additions [Geotechnical, Hydraulics, ITS, Landscape, Pavement Design Project Managers, Right-of-Way, Roadway Design, Structures, Traffic and Safety, Region Utility Coordinator]
- #85P – Prepare Advertising Plans Set [Project Managers, Roadway Design]

3. QC/QA for Engineer's Estimates

Each Region will follow its own Estimate Review Process including QC/QA Process for Engineer's Estimates when applicable. Keep all documentation pertaining to the Engineer's Estimate in the project file.

4. QC/QA for Structures Work

Keep all QC/QA documentation for structures work in the project file along with other QC/QA documentation. Request QC/QA documentation from UDOT Structures Division or Consultant when applicable.

5. QC/QA Documentation

Maintain the QC checklist for each QC activity used on each UDOT Project as a summary of the QC performed for the Project. The person performing each task enters his or her name, signs, and dates the QC checklist when a specific task is completed and gives the products of that task to the QC person. The QC person checks that the products of the task are correct and complete and signs and dates the QC checklist. The products of a task will be returned to the preparer if they are incomplete or incorrect and noted in the remarks column of the QC checklist. Additional copies of the QC checklists are required for each correction or addition to a task.

6. Backup Documentation

Maintain backup documentation of the checking procedure in addition to the QC/QA checklists and the Certifications. This documentation will include but not be limited to:

a. Checked prints and calculations
b. Comment resolution forms
c. Marked up plan sheets
d. Written records of the Quality Control check findings
e. Peer review letters, memoranda, etc.
f. Other correspondence regarding Quality Control activities

7. Certify that Quality Control was Performed

Submit products from Activity 55D – Review Roadway Plan/Field Review and Activity 70P – Assemble PS&E Package, with their portion of the project plans, QC certification, and location of where QC documentation is stored. Roadway Design Squad member or Consultant who assembles the final PS&E package will also certify that it is complete and accurate as part of Design Process Activity 80P – Make PS&E Revisions/Additions. Each section or division such as Structures, Hydraulics, Landscaping, etc. will send in the certifications to the

Roadway Design Engineer to become part of the PS&E package to keep with the project file QC/QA documentation.

8. Apply QC/QA Plan to Consultant Preconstruction Activities

QC/QA requirements apply to all UDOT preconstruction activities including those performed by Consultants. Consultants may use and follow the UDOT QC/QA plan or develop its own but it must contain the minimum requirements of the UDOT plan and be approved by the UDOT project manager. To qualify as a UDOT Pool Consultant, the Consultant must submit a letter of certification stating it will use the UDOT QC/QA Plan or that the Consultant will use its own QC/QA plan and that it meets or exceeds the UDOT QC/QA requirements.

9. General Guidelines to Assist in the QC/QA Process

A. Perform the QC/QA process including signatures throughout the project, not retroactively.

B. Keep the QC/QA checklists in the project file.

C. Maintain a copy of all QC/QA documentation in the project file including but not limited to QC/QA checklists, Q/C certifications, and project backup documentation.

D. Obtain copies of all QC/QA documentation from outside design sources such as Structures, Hydraulics, Consultants, etc.

10. QC/QA Documentation Organization

A. Keep a copy of all necessary documentation. Request a copy of documents and certifications for the project file.

B. QC/QA certifications and backup documentation must be signed and dated.

11. QC/QA for Consultant Designed Projects

The Consultant will use a certified QC/QA plan that is approved by the Project Manager. The Consultant will:

1. Provide QC/QA signatures and backup documentation for each applicable activity.
2. Perform the QC/QA process throughout the project and not retroactively.
3. Sign and date each Consultant QC/QA activity.

4. Provide the name and title of the person who signs any QC/QA documentation.
5. Submit QC/QA Plan documentation for review at key stages in the design process such as 55D – Plan in Hand and 70P – PS&E.

12. Quality Control Audit

The Quality Control (QC) Audit is performed is to check that guidelines set forth in the QC/QA plan are followed on every UDOT project. The QC audit verifies that the QC/QA plan is being followed and that those responsible parties such as designers, project managers, and consultants implement the plan. The project QC Audit is a simple procedure if the QC/QA process is followed.

13. Quality Control Audit Procedure

1. A UDOT QC auditor will perform the QC Audit. The audit will take place region office responsible for the project. An alternative location for the audit may be used if all parties agree.
2. The QC auditor will check the QC/QA checklists, certifications, and backup documentation for proper signatures and dates including Structures QC/QA documentation where applicable.
3. The QC auditor will check the Estimate Review Process (Engineer's Estimates QC/QA) used by that Region.
4. The QC auditor will complete a QC/QA Audit Checklist that includes all activities and certifications that require QC/QA.
5. The QC auditor will compile a QC Audit Report at the UDOT central office.
6. The QC Audit Report will be sent to the project manager, designer, consultant, region Project Manager, and other parties with an interest in the QC Audit.

14. Quality Control Audit Attendees

The following people will attend the QC Audit:

1. QC Auditor
2. Project Manager
3. Project Designer (UDOT or Consultant Designer)
4. Others interested such as Region Preconstruction Engineer, Region Director, etc.